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EXAMINER	
FRISBY, KESHA	

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM EARL RUSSELL, II and
DAVID JOSEPH KROPACZEK

Appeal 2009-011532
Application 10/677,239
Technology Center 3700

Before STEVEN D.A. McCARTHY, MICHAEL W. O'NEILL,
and KEN B. BARRETT, *Administrative Patent Judges*.

Opinion for the Board filed by O'NEILL, *Administrative Patent Judge*.

Opinion Concurring filed by McCARTHY, *Administrative Patent Judge*.

O'NEILL, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

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STATEMENT OF THE CASE

William Earl Russell, II and David Joseph Kropaczek (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-34. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The claimed invention is to a method for reactor simulation.

Claim 1, reproduced below, is illustrative of the subject matter on appeal.

> 1. A method for reactor simulation, comprising:
>
> receiving user input including values of one or more design input variables previously used in creating an existing response surface, the response surface defining relationships between the design inputs and operational outputs of at least one or more aspects of a core design; and
>
> generating a reactor simulation based on the existing response surface for the core design and the received user input.

The Prior Art

The Examiner relies upon the following as evidence of unpatentability:

Alliston	US 3,919,720	Nov. 11, 1975
Russell	EP 1 113 457 A1	Jul. 4, 2001

The Rejections

The following Examiner's rejections are before us for review:

Claims 1-4, 6-21, and 23-34 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Russell.

Claims 5 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable in view of Russell and Alliston.

Claims 1-34 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

SUMMARY OF DECISION

We AFFIRM.

DISCUSSION

§ 102 and § 103 rejections

We have reviewed the Examiner's rejections under 35 U.S.C. §§ 102 and 103 in light of the Appellants' arguments. Appellants argue that the Examiner fails to provide sufficient evidence that Russell actually has or is capable of having the new center-point data inputted by the user after creation of a response surface. *See* Reply Br. 3. We are constrained to not sustain these rejections. The Examiner fails to provide any citation to Russell that permits a finding that once a response surface exists, the system receives user input. Ans. 9.

§ 101 rejection

Recently, the Supreme Court reaffirmed the Court's precedent that there are three specific exceptions to 35 U.S.C. § 101's broad patent-eligibility principles: "laws of nature, physical phenomena, and abstract ideas." *Bilski v. Kappos*, 130 S. Ct. 3218, 3225 (2010) quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980). The Supreme Court stated that the machine-or-transformation test is not sole test, but "a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101." As such, an examiner can apply this test to investigate whether the claimed process falls within one of the three exceptions.

Here, the Examiner's investigation appears to have lead to a finding that the claimed methods are not tied to a particular machine or transform something to a different state or thing. There are factors within the record that support the Examiner's finding that are relevant to this investigation. First, the invention is directed to simulation to predict what occurs within a nuclear reactor when factoring in particular parameters and procedures. Spec., *passim*. Second, the claims themselves fail to recite the transformation of something to a different state or thing or being tied to a particular machine. In particular, the Specification discloses that the methods can be implemented on many machines contemporaneously. *See* Spec. pg. 17, para. [0048]; pgs. 18-20, paras. [0051] and [0053]; pg. 20-21, paras. [0054] and [0055].

Appellants contend that the claims are similar to claim 6 in *In re Abele*. Appellants contend that their claims transform data representing physical objects, e.g. power plant controls, and the claims output the transformed data into a visual form, namely, a reactor simulation. Reply Br. 5-6. Firstly, there is no evidence that the reactor simulation is visual to the eye. The simulation occurs entirely within the computers that contemporaneously process the method steps. The court in *In re Abele* held that claim 6 was patent-eligible because that claim recited a "transformation of raw data into a particular visual depiction of a physical object on a display." *In re Bilski*, 545 F.3d 943, 963 (Fed. Cir. 2008) explaining *In re Abele*, 684 F.2d 902, 908-09 (CCPA 1967). In other words, the electronic transformation of the data into a visual depiction was sufficient. Here, the claims on appeal are not limited to any visual depiction because nothing in the claims is being displayed on a display, e.g., "produced in a two dimensional field by a computed tomography scanner." *In re Abele*, 684 F.2d at 908. The claims fail to limit any of the data to being depicted. The dependent claims are just assigning descriptive labels to the inputted data by the user. There is no legal principle that holds transforming data that represents particular physical objects is a transformation of something to a different state or thing. The claims are not limited to transforming data representing physical objects into tangible output because nothing in the claims recites a step that can be deemed as outputting something tangible. The claims are couched essentially as receiving input and generating a simulation based on the input. There is no tangible output step present in the claims on appeal.

In view of the foregoing, and after a review of the Examiner's determination of patent-ineligibility and in light of the Appellants' arguments for patent-eligibility, we conclude that the claimed subject matter within claim 1 is directed to an abstract idea. As such, we sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 101 as directed to non-statutory subject matter.

Claims 2-34 have not been separately argued for this ground of rejection. As such, we selected claim 1 as representative for analyzing this ground of rejection and pursuant our rules claims 2-34 fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

DECISION

The Examiner's decision to reject claims 1-34 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2010).

AFFIRMED

Klh

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McCARTHY, *Administrative Patent Judge*, *Concurring*.

I agree fully with the findings, analysis and decision of my colleagues. I write separately only to emphasize a few points relating to the rejection of representative claim 1 under § 101.

Claim 1 is directed to an abstract idea. The claim is phrased as a method comprising two steps. The product derived from performing the steps of claim 1 is an abstract idea, namely, a reactor simulation. The simulation itself is not a machine, manufacture or composition of matter. Furthermore, paragraph 0073 of the Specification states that:

> [T]he method of predicted reactor simulation provides for using the response surface generated for a reactor core as a type of cyber-workspace to test possible changes to the design. Furthermore, the predicted reactor simulation results are generated in real time making this a feasible option for quickly testing theories or just experimenting with design changes.

In other words, the Appellants' intended use for the simulation produced by the steps of claim 1 is as part of the mental process of an engineer. This intended use emphasizes the abstractness of the simulation itself.

In addition, the recitation of "user input" in the first step of claim 1 is sufficiently broad that the starting materials on which the steps of claim 1 operate, namely, the user input, may include abstract ideas. More specifically, the user input received in the first step of claim 1 is sufficiently broad to include values not based on a physical system. Although the user input mentioned in the first step includes values of one or more design input variables previously used in creating an existing response surface, the user input is not limited to such values.

The steps disclosed in the Specification for transforming the user input to the reactor simulation appear to consist entirely of mathematical processes. In other words, the steps of claim 1 perform abstract operations to produce an abstract simulation. Since the steps recited in claim 1 are not limited to particular mathematical processes for transforming the user input into the reactor simulation, the claim may pre-empt any set of steps for preparing a simulation of a reactor core based on user input so long as at least some of the starting variables were used previously in creating a response surface. Based on the reasons articulated by my colleagues, I join in concluding that the subject matter of representative claim 1 (and of claims 2-34) is properly rejected under § 101 as being directed to non-statutory subject matter.